

**FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES AND  
CANDIDATE SPECIES IN NEW JERSEY UNDER  
U.S. FISH AND WILDLIFE SERVICE JURISDICTION  
(Species Narratives)**

**LISTED SPECIES - PLANTS**

**Swamp pink (*Helonias bullata*)**

Swamp pink was listed as a threatened species on September 9, 1988, pursuant to the Endangered Species Act (ESA). Supporting over half of the known populations, New Jersey is the stronghold for this attractive and distinctive species. Witmer Stone, a preeminent New Jersey botanist, described swamp pink as one of the most characteristic plants of southern New Jersey. Considered an obligate wetland species, the plant occurs in a variety of palustrine forested wetlands in New Jersey including swampy forested wetlands bordering meandering streamlets, headwater wetlands, sphagnum Atlantic white-cedar swamps, and spring seepage areas. Specific hydrologic requirements of swamp pink limit its occurrence within these wetlands to areas that are perennially saturated, but not inundated, by floodwater. The water table must be at or near the surface, fluctuating only slightly during spring and summer months. In New Jersey, groundwater seepage with lateral groundwater movement is always present.

Swamp pink is a shade-tolerant plant and has been found in wetlands with canopy closure varying between 20 and 100 percent. Sites with minimal canopy closure are less vigorous due in part to competition from other species. Common vegetative associates of swamp pink include: *Chamaecyparis thyoides* (Atlantic white-cedar), *Acer rubrum* (red maple), *Pinus rigida* (pitch pine), *Larix laricina* (American larch), *Picea mariana* (black spruce), *Picea rubens* (red spruce), *Clethra alnifolia* (sweet pepperbush), *Magnolia virginiana* (sweetbay magnolia), *Sphagnum* spp. (sphagnum mosses), *Osmunda cinnamomea* (cinnamon fern), *Symplocarpus foetidus* (skunk cabbage), and *Kalmia* spp. (laurels). Since swamp pink is often found growing on the hummocks formed by trees, shrubs, and sphagnum mosses, these micro-topographic conditions may also be an important component of swamp pink habitat.

The primary threats to swamp pink are the indirect effects of off-site activities and development, such as pollution and subtle changes in groundwater and surface water hydrology. Hydrologic changes occur because of increased sedimentation from off-site construction and by direct discharges to wetlands (such as stormwater outfalls) and increased runoff from upstream development, which increase the frequency, duration, and volume of flooding, and subsequent erosion. Other threats to this species include direct destruction of habitat from wetland clearing, draining and filling; collection; and trampling.

### **Knieskern's beaked-rush (*Rhynchospora knieskernii*)**

Knieskern's beaked-rush was listed as a threatened species on July 18, 1991, pursuant to the ESA. This plant is endemic to New Jersey. Considered an obligate wetland species, the plant occurs in early successional wetland habitats, often on bog-iron substrates adjacent to slow-moving streams in the Pinelands region of New Jersey. The plant is also found in human-disturbed wet areas including abandoned borrow pits, clay pits, ditches, rights-of-way, and unimproved roads. Knieskern's beaked-rush is often associated with other sedge and grass species. However, it is intolerant of shade and competition, especially from woody species, and is sometimes found on relatively bare substrates.

Threats to Knieskern's beaked-rush include habitat loss from development, agriculture, hydrologic modification, and other wetland alterations; excessive disturbance from vehicle-use, trash dumping, and other activities; and natural vegetative succession of the open, sparsely-vegetated substrate preferred by this species.

### **Sensitive joint-vetch (*Aeschynomene virginica*)**

The sensitive joint-vetch was listed as threatened on May 20, 1992 pursuant to the ESA. This annual legume can grow up to 6 feet tall and has yellow, pea-type flowers growing on racemes on short lateral branches. This species occurs along segments of river systems that are close enough to the coast to be influenced by tidal action, yet far enough upstream to consist of fresh or slightly brackish water. These freshwater tidal marshes are subjected to a cycle of twice-daily flooding that most plants cannot tolerate. Bare or sparsely vegetated substrate appears to be a habitat requirement for this species, which usually grows on river banks within 2 meters (6.6 feet) of the low water mark. The plant can also occur on accreting point bars and in sparsely vegetated microhabitats of freshwater tidal marsh interiors, such as low swales and areas of muskrat (*Ondatra zibethicus*) eat-out. This species is typically found in areas where plant diversity is high and annual species are prevalent. Threats to the sensitive joint-vetch include: dredging and filling of marshes, dam construction, shoreline stabilization, commercial and residential development, sedimentation, impoundments, water withdrawal projects, invasive plants, introduced insect pests, pollution, recreational activities, agricultural activities, mining, timber harvest, and salt water intrusion due to sea level rise.

### **American chaffseed (*Schwalbea americana*)**

The American chaffseed was listed as endangered on September 29, 1992 pursuant to the ESA. This species occurs in sandy (sandy peat, sandy loam), acidic, seasonally-moist to dry soils. It is generally found in habitats described as open, moist pine flatwoods, fire-maintained savannas, ecotonal areas between peaty wetlands and xeric sandy soils, bog borders, and other open grass-sedge systems. American chaffseed is dependent on factors such as fire, mowing, or fluctuating water tables to maintain the crucial open to partly-open conditions that it requires. The species appears to be shade intolerant. American chaffseed occurs in species-rich plant communities where grasses, sedges, and other savanna dicots are numerous. Threats to the American chaffseed include collecting, excessive disturbance, and loss of open habitat due to development and natural vegetation succession.

### **Small whorled pogonia (*Isotria medeoloides*)**

The small whorled pogonia was listed as endangered on October 12, 1982 pursuant to the ESA. This species occurs on upland sites in mixed-deciduous or mixed-deciduous / coniferous forests that are generally in second or third-growth successional stages. Characteristics of this species' habitat include a sparse herb and shrub layer, a relatively open understory canopy, thick leaf litter on the forest floor, and gently sloping ground. Soils in which small whorled pogonia grows are generally acidic and dry during most of the growing season. Many sites where this plant occurs are underlain by soils with a hardpan layer that impedes the downward flow of water and leads to the formation of shallow, braided channels on the ground surface. Small whorled pogonia is almost always found in proximity to features that create long-persisting breaks in the forest canopy; light availability could be a limiting factor for this species.

Typical canopy species associated with the small whorled pogonia include: *Acer rubrum* (red maple), *Tsuga canadensis* (eastern hemlock), *Quercus rubra* (northern red oak), *Q. alba* (white oak), *Q. velutina* (black oak), *Q. coccinea* (scarlet oak), *Pinus strobus* (white pine), *Fagus grandifolia* (American beech), *Liquidambar styraciflua* (sweet-gum), and *Liriodendron tulipifera* (tulip poplar). Typical ground layer species associated with small whorled pogonia include: *Mitchella repens* (partridge berry), *Medeola virginiana* (Indian cucumber root), *Thelypteris noveboracensis* (New York fern), *Vaccinium pallidum* (sweet lowbush blueberry), *Goodyera pubescens* (rattlesnake plantain), *Acer rubrum* (red maple seedlings), *Quercus* spp. (oak seedlings), *Maianthemum canadense* (Canada mayflower), *Gaultheria procumbens* (wintergreen), *Tridentalis borealis* (star-flower), *Lycopodium digitatum* (running cedar), *Parthenocissus quinquefolia* (Virginia creeper), *Smilax glauca* (cat-briar), and *Polystichum acrostichoides* (Christmas fern).

### **Seabeach amaranth (*Amaranthus pumilus*)**

Seabeach amaranth was listed as threatened on April 7, 1993 pursuant to the ESA. Seabeach amaranth is an annual plant endemic to Atlantic Coast beaches and barrier islands. The primary habitat of seabeach amaranth consists of overwash flats at accreting ends of islands, lower foredunes, and upper strands of non-eroding beaches (landward of the wrackline), although the species occasionally establishes small temporary populations in other habitats, including sound-side beaches, blowouts in foredunes, inter-dunal areas, and on sand and shell material deposited for beach replenishment or as dredge spoil. Seabeach amaranth usually grows on a nearly pure sand substrate, occasionally with shell fragments mixed in. The plant grows above the high tide line and is intolerant of even occasional flooding during its growing season (May into the fall). The habitat of seabeach amaranth is sparsely vegetated with annual herbs and, less commonly, perennial herbs (mostly grasses) and scattered shrubs; the species is intolerant of competition and does not occur on well-vegetated sites. Seabeach amaranth is often associated with beaches managed for the protection of beach nesting birds such as the piping plover (*Charadrius melodus*) and least tern (*Sterna antillarum*). Threats to seabeach amaranth include beach stabilization efforts (particularly the use of beach armoring, such as sea walls and riprap), intensive recreational use, and herbivory by webworms.

## **LISTED SPECIES - INVERTEBRATES**

### **Dwarf wedgemussel (*Alasmodonta heterodon*)**

The dwarf wedgemussel was listed on March 14, 1990 and is currently listed as endangered pursuant to the ESA. A rare freshwater mussel, the dwarf wedgemussel has a trapezoid-to-ovate, or "humpback," shell that rarely exceeds 3.8 cm (1.5 in.) in length. The dwarf wedgemussel is characterized by having two lateral teeth on the right valve of the shell, but only one on the left (thus the name *heterodon*). The ventral margin is mostly straight and the beaks are low and rounded, projecting only slightly above the hinge line. The outer shell is dark brown or yellowish brown and often exhibits greenish rays in young mussels. The inner shell is bluish or silvery white. Dwarf wedgemussels inhabit rivers and streams with muddy sand, sand, and gravel substrates, and feed by filtering small particles from the water. This species requires areas with a slow to moderate current, little silt deposition, and well-oxygenated, unpolluted water. Threats to the dwarf wedgemussel include direct habitat destruction from damming and channelizing of rivers, and indirect degradation of habitat due to pollution, sedimentation, invasion by exotic species, and fluctuations in water level or temperature.

### **Northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*)**

The northeastern beach tiger beetle was listed on August 7, 1990 and is currently listed as a threatened species pursuant to the ESA. Although the northeastern beach tiger beetle was once found in great numbers along the Atlantic coast, the species is now found only within the Chesapeake Bay of Maryland and Virginia, at two sites in Massachusetts, and at one site in New Jersey. The northeastern beach tiger beetle was historically found along New Jersey's undeveloped Atlantic coastal beaches from Sandy Hook to Holgate. The Service has recently conducted recovery activities to restore this diurnal, predatory insect to portions of its former range. Beginning in October 1994, an experimental reintroduction of the northeastern beach tiger beetle was undertaken by the Service at the Gateway National Recreation Area, Sandy Hook Unit.

Northeastern beach tiger beetle larvae occur over a relatively narrow band of the upper intertidal to high drift zone; thus many larvae are regularly covered during high tide. Tiger beetle larvae are "sit-and-wait predators," that dig vertical burrows in the sand and wait at the burrow mouth from which they rapidly extend to seize small prey. Primary prey items are small amphipods, flies, and other beach arthropods. Additionally, adult northeastern beach tiger beetles have been observed scavenging on dead amphipods, crabs, and fish. Northeastern beach tiger beetle larvae pass through three developmental stages or instars during a full 2-year life cycle, over-wintering twice as larvae, pupating at the bottom of their burrows, and emerging as winged adults during their third summer. The northeastern beach tiger beetle is threatened by destruction and disturbance of its natural beach habitat from shoreline development and beach stabilization projects, high recreational use, offshore spills of oil or other contaminants, pesticide spraying for mosquito control, and natural phenomenon such as winter beach erosion, flood tides, and hurricanes.

## **LISTED SPECIES - REPTILES**

### **Bog turtle (*Clemmys muhlenbergii*)**

The bog turtle was first listed on November 11, 1997 and is currently listed as a threatened species pursuant to the ESA. Bog turtles are a semi-aquatic turtle that consumes a varied diet including insects, snails, worms, seeds, and carrion. Bog turtles inhabit open, unpolluted emergent and scrub/shrub wetlands such as shallow spring-fed fens, sphagnum bogs, swamps, marshy meadows, and wet pastures. These habitats are characterized by soft muddy bottoms, interspersed wet and dry pockets, vegetation dominated by low grasses and sedges, and a low volume of standing or slow-moving water that often forms a network of shallow pools and rivulets. Bog turtles prefer areas with ample sunlight, high evaporation rates, high humidity in the near-ground microclimate, and perennial saturation of portions of the ground. Threats to bog turtles include habitat loss from wetland alteration, development, pollution, natural vegetation succession, and illegal collection for the commercial pet trade. Bog turtle habitat surveys may be performed any month of the year (except when significant snow cover is present). Visual and/or trapping surveys for bog turtle should be performed only during the period from April 15 to June 15; surveys after June have a higher likelihood of disruption or destruction of nests or newly hatched young. Please contact the New Jersey Field Office for more information regarding bog turtle surveys.

## **LISTED SPECIES - BIRDS**

### **Bald eagle (*Haliaeetus leucocephalus*)**

The bald eagle was first protected on March 11, 1967 under the Endangered Species Preservation Act of 1966 (P.L. 99-669, 80 Stat. 926) and is currently listed as a threatened species pursuant to the ESA. Bald eagles occur in New Jersey throughout the year. The breeding season in New Jersey begins in late December and early January. During this period, mating pairs will work diligently to build or repair their nest. First year nests can measure 2 feet high and 5 feet across. Eagles may use the same nest year to year, adding sticks and other nesting material, making the nest larger and larger each year. By the middle of February, most bald eagles in New Jersey have begun to lay their clutch of one to three eggs. Young eagles fledge 11 to 12 weeks after hatching. For as long as 3 months after the young fledge, adults continue to provide food for them. During this period, the fledglings learn to fly proficiently and also begin to hunt for themselves.

Eagles are opportunistic feeders and will eat carrion or live prey, primarily fish, but also small mammals, reptiles, and waterfowl. Bald eagles prefer forested or open habitats with little human disturbance near large bodies of water, such as lakes, large rivers, reservoirs, and seacoasts. Eagles are often attracted to a water body as they search for food, and frequently roost in dead or mature trees adjacent to water. In winter, bald eagles gather in large numbers near coasts and inland water bodies that remain ice-free, allowing access to fish and other prey. Threats to the bald eagle include environmental contaminants, habitat destruction and degradation, and disturbance of nesting and feeding birds.

### **Piping plover (*Charadrius melodus*)**

The piping plover was first listed on December 11, 1985, and is currently listed as a threatened species pursuant to the ESA. These small, territorial shorebirds are present on the New Jersey shore between March and August. Piping plovers nest above the high tide line, usually on sandy ocean beaches and barrier islands, but also on gently sloping foredunes, blowout areas behind primary dunes, washover areas cut into or between dunes, the ends of sandspits, and deposits of suitable dredged or pumped sand. Piping plover nests consist of a shallow scrape in the sand, frequently lined with shell fragments and often located near small clumps of vegetation. Piping plover adults and chicks feed on marine macroinvertebrates such as worms, fly larvae, beetles, and crustaceans. Feeding areas include the intertidal zone of ocean beaches, ocean washover areas, mudflats, sandflats, wrack lines (organic ocean material left by high tide), and the shorelines of coastal ponds, lagoons, and salt marshes.

Threats to the piping plover include habitat loss, human disturbance of nesting birds, predation, and oil spills and other contaminants. Habitat loss results from development, as well as from beach stabilization, beach nourishment, and other physical alterations to the beach ecosystem. Human disturbance of nesting birds includes foot traffic, sunbathing, kite flying, pets, fireworks displays, beach raking, construction, and vehicle use. These disturbances can result in crushing

of eggs, failure of eggs to hatch, and death of chicks. Predation on piping plover chicks and eggs is intensified by development because predators such as foxes (*Vulpes vulpes*), rats (*Rattus norvegicus*), raccoons (*Procyon lotor*) and gulls (*Larus sp.*), thrive in developed areas and are attracted to beaches by food scraps and trash. Unleashed and feral dogs (*Canis familiaris*) and cats (*Felis domesticus*) also prey on piping plover chicks and eggs.

### **Roseate tern (*Sterna dougallii*)**

The roseate tern was first listed on November 2, 1987 and is currently listed as endangered pursuant to the ESA. The roseate tern has a faint rosy tint to its breast feathers, bills that are mostly black in the summer, and long tail feathers, distinguishing it from similar species of terns. About 15 inches long including their tail feathers, roseate terns are agile fliers and feed by plunge-diving for small fish. Roseate terns begin to arrive in New Jersey at the end of April. By the end of May, most birds have paired and selected nesting sites. Roseate terns usually nest among colonies of common terns (*Sterna hirundo*) and benefit from the aggressive “colony-site defense” behavior of common terns. Their nests are little more than shallow scrapes on bare ground that are frequently concealed under beach vegetation, rock or driftwood. By early August, roseate terns have left the nesting site and in September they head out to sea and back to their wintering grounds in South America.

Threats to roseate terns include: decreased productivity due to habitat lost on or near coastal barrier islands from development; increased human recreation and disturbance in coastal areas; and predation by great black-backed (*Larus marinus*) and herring gulls (*Larus argentatus*), whose populations increase in areas where human garbage provides an abundant food supply.



## LISTED SPECIES - MAMMALS

### Indiana bat (*Myotis sodalis*)

The Indiana bat was first protected on March 11, 1967 under the Endangered Species Preservation Act of 1966 and is currently listed as endangered pursuant to the ESA. Indiana bats hibernate in caves and abandoned mine shafts from October to April, depending on climatic conditions. Between early August and mid-September, Indiana bats arrive near their hibernation caves and engage in swarming and mating activity. Swarming at cave entrances continues into mid or late October. During this time, the bats forage and build fat reserves for hibernation. Many areas of New Jersey have not been surveyed for the presence of the Indiana bat. The past extensive mining that has taken place in some areas of New Jersey has resulted in numerous abandoned mine shafts that may provide suitable conditions for use by the Indiana bat as hibernacula. However, the openings of many of these shafts have collapsed or been purposefully sealed to prevent human access, making determination of Indiana bat use difficult.

After emerging from hibernation, Indiana bats once again forage in the vicinity of the hibernation site before migrating to summer habitats. Where Indiana bats go after dispersing from their hibernacula in New Jersey is not well known. Until recently, little was known about the summer habitat of the Indiana bat. Female Indiana bats occupy summer maternity roosts under the loose tree bark of dead, dying, or live trees along riparian, floodplain, or upland forests. Female Indiana bats raise a single offspring each year. The summer roosts of adult males are often found near maternity roosts, but where most males spend the day is unknown. Some adult males remain near the hibernaculum and have been found in caves during the summer. Proposed projects in the following counties should be reviewed to determine if suitable summer or winter habitat is present: Essex, Hunterdon, Passaic, Somerset, Sussex, Union, and Warren. If suitable habitat is present and will be altered or removed, the project site should be surveyed for the presence of the Indiana bat.

Indiana bats, as with all eastern United States bat species, feed almost exclusively on insects. Indiana bats forage for flying insects in and around the tree canopy at night. A variety of upland and wetland habitats are used as foraging areas, including flood plain, riparian, and upland forests; pastures; clearings with early successional vegetation; cropland borders; and wooded fencerows. Preferred foraging areas are streams, associated flood plain forests, and impounded bodies of water such as ponds and reservoirs. The abundance of mature trees within the floodplain and upland forest in northern New Jersey provide suitable maternity, summer, and foraging habitat for the Indiana bat. If maternity roost sites are located within a project area, clearing of mature trees could adversely affect the Indiana bat through disturbance to or destruction of maternity or summer roost trees. Threats to the Indiana bat include disturbance or killing of hibernating and maternity colonies; vandalism and improper gating of hibernacula; fragmentation, degradation, and destruction of forested summer habitats; and use of pesticides and other environmental contaminants.

## CANDIDATE SPECIES

Candidate species are species under consideration by the Service for possible inclusion on the List of Endangered and Threatened Wildlife and Plants. These species receive no substantive or procedural protection under the ESA; however, the Service encourages federal agencies and other planners to consider candidate species in project planning.

### **Bog asphodel (*Narthecium americanum*)**

Bog asphodel is a perennial herb found in open bogs, wet savannahs, lowland oxbow meanders, iron ore streamlet seeps, and sunny borders of Atlantic white-cedar (*Chamaecyparis thyoides*) swamps. The species often forms clumps in mucky soil along small channels of cold seepage water. Bog asphodel favors areas influenced by slow-moving groundwater, and cannot tolerate heavy shade or extended periods of flooding or dessication. Threats to bog asphodel include long-term hydrologic change, habitat loss, and natural vegetation succession.

### **Hirst's panic grass (*Dichanthelium hirstii*)**

Hirst's panic grass is a perennial grass that produces erect leafy flowering stems from May to October. It occurs in Coastal Plain intermittent ponds, usually in wet savanna or pine barren habitats. The species requires habitats that are at least intermittently wet, receiving full sun to light shade, and substrates that are organic but firm. The plant occurs in flat-bottomed depressions with substantial water-level fluctuations dependent on rainfall. The species relies on periods of standing water to keep competing species at a minimum. Individual populations can vary dramatically in size from year to year. In some years, plants may not appear. Threats to Hirst's panic grass include habitat loss, natural competition and succession, hydrologic alterations, and grazing by resident Canada geese (*Branta canadensis*).

## **DELISTED SPECIES**

### **Peregrine falcon (*Falco peregrinus*)**

Formerly listed as endangered, on August 25, 1999, the American peregrine falcon was delisted in its entire range; however, it continues to be protected federally under the Migratory Bird Treaty Act (40 Stat. 755; 16 U.S.C. 703-713). The peregrine falcon is also protected under New Jersey law (N.J.S.A. 23:2A *et seq.*) as a State-listed (endangered) species. Section 4(g)(1) of the ESA requires implementation of a monitoring program for a minimum of 5 years. The Service has decided to monitor the peregrine falcon for 13 years, to provide data that will reflect the status of at least two generations of peregrines. If it becomes evident during this period that the peregrine is not maintaining its recovered status, the species could be relisted under the ESA.

Peregrine falcons are found along the rivers and seacoasts of New Jersey. Peregrine falcons typically nest on ledges and in small shallow caves located high on cliff walls, or on man-made platforms. The species also occurs in urban areas, nesting on bridges and tall buildings. Peregrines feed on songbirds, gulls, terns, shorebirds, and wading birds. During the breeding season, a hunting range of 10 miles may be considered typical for this species.